

Space Weather Forecast

Issued on Thursday, 17 February 2022 at 01:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: No significant activity expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Very Low to Low over the past 24 hours. One common class flares occurred from the large sunspot group that transited to the far side through the 16th. This leaves 6 sunspot regions on the visible disc. Most of these are small and simple but there is a region in the southeast which showed some signs of growth.

No Earth-directed Coronal Mass Ejections (CMEs) were in evidence in available coronagraph imagery in the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind speed has been at background levels, between 350 and 400 km/s. The total magnetic field has been weak throughout, but increased slightly from 16/1230 UTC, with some sustained periods of negative orientation in the important north-south component. Geomagnetic activity was predominantly Quiet (Kp 1-2), but an Unsettled (Kp 3) interval was observed 16/1800-2100 UTC during one of these periods

Energetic Particles / Solar Radiation: The high energy proton flux was at background levels, but increased slightly around 16/0800 UTC. This was probably due to the large CME which occurred on the far side late on the 15th.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain Very Low or Low through the forecast period, with a slight chance of isolated moderate-class flares. Most likely on day whilst a significant sunspot region remains near the west limb on the far side.

Solar Wind / Geomagnetic Activity: No CMEs feature in this forecast period. Solar winds are likely to remain slow through the forecast period, leading to predominantly Quiet geomagnetic activity. However, there is a chance of winds becoming elevated later on day 3 (19th) into day 4 (20th) due to the fast wind from the coronal hole extending from the southern crown. If this was to happen geomagnetic activity would likely become Unsettled to active, and there would be a chance of a minor geomagnetic storm.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	10	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	20	10	10	10
Very Active	R3 to R5 X	No	2	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	2	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)